

Docket No. 265044US0PCT

DT03 Rec'd PCT/PTO 08 MAR 2005

MAIL STOP PCT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Tatsuya TANAKA, et al.

SERIAL NO: 10/522,840

GAU:

FILED: January 27, 2005

EXAMINER:

FOR: METHOD AND APPARATUS FOR INJECTION FOAMING MOLDING



INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s), published application(s) or issued patent(s) which may be related to the present application. In accordance with the waiver of 37 CFR 1.98 dated September 21, 2004, copies of the cited pending applications are not provided. Cited published and/or issued patents, if any, are listed on the attached PTO form 1449.
- ☐ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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Form PTO 1449
(Modified)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY DOCKET NO.
265044US0PCTSERIAL NO.
10/522,840

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT
Tatsuya TANAKA, et al.FILING DATE
January 27, 2005

GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	2,983,597	05/09/61	ELLIOTT, J.C.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO	9-241780	09/16/97	JP		NO
	AP	1-127631	05/19/89	JP		NO
	AQ	2002-371327	12/26/02	JP		NO
	AR	1-51528	11/06/89	JP		NO
	AS	2002-511526	04/16/02	JP		NO
	AT					
	AU					
	AV					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	
	AX	
	AY	
	AZ	<input type="checkbox"/> Additional References sheet(s) attached

Examiner

Date Considered

*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

U.S. PCT Application Serial No. 10/522,840
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STATEMENT OF RELEVANCY

1) References AO-AQ have been cited in the International Search Report. Copies of these references are being submitted herewith only when not automatically provided by the International Searching Authority.

2) References _____ have been cited in the corresponding _____ Search Report. A copy of these references is being submitted herewith.

3) References AA, AR and AS are discussed in the specification. A copy of these references is being submitted here with.

4) Reference _____ is additional prior art known to Applicant. A copy of these references is being submitted herewith.

1. JP 1-51528

PURPOSE: To manufacture a foamed Al having cell structure of bubble homogeneous in shape by melting Al or an alloy thereof, agitating the above with the addition of specific amounts of Ca to increase viscosity, further agitating with the addition of specific amounts of TiH₂ and foaming the above in a hermetically sealed state.

CONSTITUTION: Ca, as a thickener, is added by 0.2-8wt% to molten Al 2 held in a mold 1 heated by a heater 4 and the mixture is agitated by an agitator 3 to undergo regulation of Al viscosity, which is then agitated with the addition of 1-3% powdered TiH₂ as a foaming agent so as to be foamed. In this way, internal gas pressure P₂ is increased and overcomes the sum P₁ of atmospheric pressure and viscous resistance of Al and therefore the numerous bubbles in Al 2 are expanded. Subsequently, the mold 1 is closed with a preheated cover 9 and, while releasing air in an internal space 8 from an outlet hole, the formed Al 20 is expanded and allowed to fill the mold 1 so as to close the outlet hole 10. In this way, with maintaining the pressure P₂ of the bubbles in the foamed Al 20, the cell structure homogeneous in size and shape can be formed.

2. JP 2002-511526

The invention relates to the production of forms or similar from foamed metal based on aluminum or other metals. Semi-finished product bodies or similar consisting of a foamable semi-finished product material obtained by compacting a mixture of at least one matrix metal powder and at least one expanding agent which releases a foaming gas are placed into a foaming mould (100) or similar where they are geometrically arranged in the desired manner and then heated to a temperature in the range of melting temperature of the matrix metal. Once the mould has been filled, the foaming process is concluded and the resulting foamed metal forms are shaped out. The invention is characterized in that at least one foamable compacted semi-finished product body is placed into a foaming mould together with at least one structure or functional part (671) or similar consisting of a material which does not foam at the melting temperature of the matrix metal, retained in a desired position and then heated whereby metal foam (600) is produced, said metal foam contact-binding or surrounding the structure or functional part in the form corresponding to the inner cavity of the mould. The metal of the metal foam formed is fully or partially brought into contact with the structure of functional part and after cooling, the composite form obtained is removed from the mould with the structure or functional part bonded in the metal foam.

3. JP 9-241780

PROBLEM TO BE SOLVED: To provide method of manufacture of metallic foamed body, capable of inexpensively manufacturing a product of desired shape at arbitrary foaming ratio and also capable of facilitating foaming, with certainty, by the use of equipment of simplified structure under atmospheric pressure.

SOLUTION: One or more kinds among metals, alloys, and meal matrix composites, each having greater than or equal to 420°C melting point, are heated and formed into molten metal of <630° having less than or equal to 35% solid phase ratio by volume ratio. Titanium hydride in the amount of 0.1-5% by weight ratio is added to the molten metal and uniformly dispersed in the molten metal by agitation, and this molten metal, containing titanium hydride, in a proper quantity is poured into a mold or a metal product. Then, the molten metal in the mold or the metal product is reheated to greater than or equal to 630°C to undergo foaming treatment, followed by solidification by cooling. By this method, the metallic foamed body of prescribed shape can be obtained.